

Geology Based Sealing Evaluation

Through the negotiated rule making process, professional drillers in Idaho requested that changes to sealing requirements of the Idaho Well Construction Standards be based on geology. By evaluating a representative sample of official records submitted by Idaho's professional well drillers it is clear that improvements in well sealing should be based on geology.

Six-hundred-ninety-seven (697) drillers' reports from forty-four counties in Idaho were randomly selected from the publicly available well log data base and were evaluated to determine the adequacy, based on geology, of the existing minimum required eighteen (18) foot surface seal and the proposed thirty-eight (38) and fifty-eight (58) foot seal (see attached figure).

Surface seals based on geology require that a suitable confining layer or consolidated formation is encountered in the bore hole within the interval the seal material is placed. Drillers' reports were used to establish the depth at which the top of the first confining layer or consolidated formation is encountered and their relative thickness.

Of the six-hundred-ninety-seven (697) wells evaluated only two-hundred-eighteen (218) encountered the top of the first confining layer or consolidated formation within eighteen feet. Two-hundred-thirty-eight (238) wells encountered the top of the first confining layer or consolidated formation below eighteen feet and above thirty-eight feet, and one-hundred-nine (109) wells encountered the first confining layer or consolidated formation below thirty-eight feet and above fifty-eight feet. One-hundred-thirty-two (132) of the wells evaluated are currently sealed to depths in excess of fifty-eight-feet or would require sealing to greater than fifty-eight feet.

Based on this evaluation, only two-hundred-eighteen (218) of the six-hundred-ninety-seven (697) wells evaluated are effectively sealed within eighteen (18) feet of land surface. By increasing the minimum required seal depth to thirty-eight (38) feet, an additional two-hundred-thirty-eight (238) wells would be effectively sealed for a cumulative total of four-hundred-fifty-six (456). By increasing the minimum seal depth to fifty-eight (58) feet an additional one-hundred-nine (109) wells would be effectively sealed for a cumulative total of five-hundred-sixty-five (565).

Based on geology, only thirty-one percent (31%) of the wells evaluated are effectively sealed within eighteen feet. By increasing the minimum required seal depth to thirty-eight (38) feet, sixty-five percent (65%) of these wells would be effectively sealed, and increasing the minimum required seal depth to fifty-eight (58) feet would benefit eighty-one percent (81%) of these wells.

Cumulative Effective Seal Depth Based on Geology

